

## Remarks

**Regarding changes to the Claims:** Attached herewith is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Versions with markings to show changes made to the claims".

**Replacement of the word "step" by "act":** Independent claim 3 has been amended (above) so that the word "step" has been replaced by the word "act" to avoid any misunderstanding that this is a "step-plus-function" claim under 35 U.S.C. 112, sixth paragraph, which claim 3 is not. Claim 3 is not a "step-plus-function" claim under 35 U.S.C. 112, sixth paragraph.

**Replacement of multiply dependent claims by singly dependent claims:** Multiply dependent claims 20, 50 and 78 have been amended so that each of claims 20, 50 and 78 is now singly dependent. And new singly dependent claims 99-101 have been added. These singly dependent claims (amended and added) do not effectively change or increase the scope of multiply dependent claims 20, 50, and 78.

The Examiner states that *"It appears that the amendments which were requested to be entered on August 26, 2000 were not officially entered; ....Should applicants wish to amend the claims as intended in the August 26, 2000 letter, such amendments will have to be filed anew."* In response Applicants have respectfully filed a new amendment, canceling all but twenty claims. Applicants respectfully maintain that this amendment has essentially the same effect as the amendment originally requested on August 26, 2000 upon National Stage entry. (The originally requested amendment was, however, not officially entered.) Applicants respectfully submit that the applicants regarded only claims 3, 4, 5, 7, 8, 20, 21, 22, 23, 33, 34, 35, 37, 38, 50, 51, 52, 53, 54, and 57 as originally pending in the present US National Stage application. Twenty claims (3 independent, 17 singly dependent) are now still pending in the present application. Applicants have previously paid the fee for a total of 20 claims (3 independent, no multiply dependent). Though it has always been the desire of the applicants that only twenty claims be originally examined in the U.S. National Stage, the Examiner is requested to contact the undersigned if any additional fees are due.

The Examiner states that *"Claims 1, 2, 21, 23, 28-30, 51, 53 and 59-77 are rejected under 35 U.S.C. 112, second paragraph."* Each of these claims has now been cancelled except for claims 21 and 51. Each of claims 21 and 51 has been amended as suggested by the examiner (in the first Office Action) to replace the phrase "comprises a computer program" with the phrase "comprises the use of a computer program". Applicants respectfully thank the Examiner for this suggestion, which does not change the scope of either claim 21 or claim 51. Claims 21 and 51 are now in condition for allowance.

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Amendment/Response      inal Office Action mailed 10/02/02 for Application No. 09/623,068.      5  
Applicant(s) MCGINNIS ET AL. (Total of 7 pages.) Third month extension fee and petition under  
1.136(a) enclosed herewith.

The Examiner states that "*Claims 1, 2, and 59-77 are rejected under 35 U.S.C. 101...*". Each of these claims has now been cancelled.

New Ground of Rejection Necessitated by Amendment

The Examiner states that "*New claims 97 and 98 are rejected under 35 U.S.C. 112, second paragraph...*". These claims have now been cancelled. Applicants also respectfully point out, however, that some examples of specific embodiments of the "means" in these cancelled apparatus claims are to be found on page 34 lines 15 to 18 and in the papers cited in endnotes VIII to XIII, each of which is incorporated by reference into the application.

Copies of documents "O" and "P" were not included with the IDS filed by the applicants. However, as stated by the applicants in the filed IDS, a copy of documents "O" and "P" was included with the ISR of PCT/US99/04376 conducted by the U.S.P.T.O. And an initialed copy of the IDS indicates that the examiner has considered these documents in the examination of the present application. Should the examiner wish the applicants to supply a copy of documents "O" and "P", the applicants request prompt notification thereof.

**Conclusion**

Twenty claims (3 independent, 17 singly dependent) are still pending in the present application. These are claims 3-5, 8, 20, 21, 33-35, 38, 50, 51, 78-80, 83, 95 and new claims 99-101. For the reasons advanced above, applicants respectfully submit that the application is now in condition for allowance and that action is earnestly solicited.

Sincerely,



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**VERSION WITH MARKINGS TO SHOW CHANGES MADE TO THE CLAIMS**

3. (ONCE AMENDED) A process for identifying one or more bi-allelic markers linked to a bi-allelic genetic characteristic gene in a species of creatures, comprising the [steps] acts of:

a) choosing two or more bi-allelic covering markers so that a CL-F region is systematically covered by the two or more covering markers, the CL-F region being a collection of points on a two-dimensional plane, the two-dimensional plane having the two orthogonal dimensions of chromosomal location and least common allele frequency;

b) choosing a statistical linkage test based on allelic association for each covering marker;

c) choosing a sample of individuals for each covering marker ;

d) obtaining genotype data/sample allele frequency data for each covering marker and the sample chosen for each covering marker, and obtaining phenotype status data for the genetic characteristic for each individual in the sample chosen for each covering marker;

e) calculating evidence for linkage between each covering marker and the gene using the statistical linkage test based on allelic association chosen for each covering marker and the genotype data/sample allele frequency data for each covering marker and using the phenotype status data for the genetic characteristic for each individual in the sample chosen for each covering marker obtained in d); and

f) identifying those covering markers as linked to the genetic characteristic gene which show evidence for linkage based on the calculations of [step] e).

20. (TWICE AMENDED) A process as in [any one of]claim[s] 3[-5, 7 or 8], wherein there is a subgroup of the covering markers, and the markers in the subgroup are a majority of the covering markers, and each marker in the subgroup is an SNP, or a bi-allelic marker equivalent formed only from one or more SNPs.

21. (ONCE AMENDED) A process as in claim 20, wherein the process comprises the use of a computer program.

50. (TWICE AMENDED) A process for obtaining genotype data/sample allele frequency data as in [any one of] claim[s] 33[-35, 37 or 38], wherein there is a subgroup of the covering markers, and the markers in the subgroup are a majority of the covering markers, and each marker in the subgroup is an SNP, or a bi-allelic marker equivalent formed only from one or more SNPs.

51. (ONCE AMENDED) A process for obtaining genotype data/sample allele frequency data as in claim 50, wherein the process comprises the use of a computer program.

95. (ONCE AMENDED) One or more copies of a set of oligonucleotides as in [any one of] claim[s] 78[-94], wherein there is a subgroup of the covering markers, and the markers in the subgroup are a majority of the covering markers, and each marker in the subgroup is an SNP, or a bi-allelic marker equivalent formed only from one or more SNPs.